UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/973,205	10/09/2001	Seppo T. Vahasalo	PKR 2 0668	5802

7590 09/17/2004

Thomas E. Kocovsky, Jr.
FAY, SHARPE, FAGAN, MINNICH & McKEE, LLP
Seventh Floor
1100 Superior Avenue
Cleveland, OH 44114-2518

EXAMINER	
SHAW, SHAWNA JEANNINE	
ART UNIT	**PAPER NUMBER**
3737	

DATE MAILED: 09/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/973,205	VAHASALO ET AL.	
	Examiner	Art Unit	
	Shawna J. Shaw	3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,10-16 and 19-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *2-6* is/are allowed.

6)☒ Claim(s) *1,7,8,10-16 and 19-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 7, 10-16 and 19-21 have been considered but are moot in view of the new ground(s) of rejection.

Claim Interpretation

2. The examiner notes that cellular and Bluetooth™ technologies operate around 2.4 GHz (i.e., greater than 500MHz) and inherently comprise transceivers for facilitating communication (see specification p. 8 lines 5-15). Regarding claim 15, the examiner also understands the structure of the hand-held remote interface having receiving, display, input and communication means - as corresponding to devices such as palm pilots, laptops, cellular telephones, etc. (specification p. 7 lines 24-30). Regarding claim 8, the examiner interprets the signals to be wirelessly transmitted from the transmitter (inside the magnetic resonance suite) to the image processor (outside the magnetic resonance suite) as this is the only disclosed possibility. The examiner further notes that RF frequencies are not critical to the operation of the invention - as IR energy could equivalently be used (see specification p. 9 lines 9-12).

Claim Objections

3. Claim 8 is objected to because of the following informalities: The connection between the image processing system disposed outside the magnetic resonance suite and the RF transmitter disposed inside the magnetic resonance suite is not clear from the claim itself. For example how do the transmitter and image processor effectively communicate? The examiner understands from the

disclosure that the signals are wirelessly sent from the transmitter to the image processor. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 15 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Mault.

Mault et al. disclose a hand-held device (18), such as a PDA or laptop, in communication with an ultrasound imager including a display (18a), user interface/input means (18b), and wireless communication means operating at frequencies greater than or equal to 500 MHz capable of communicating to sequence control and image processing systems (col. 3 lines 29-50 and col. 9 lines 3-21).

5. Claims 15 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Reynolds et al.

Reynolds et al. disclose a hand-held device (i.e., laptop 125) including a user interface (125') and display (125") and wireless communication means operating at frequencies greater than 500 MHz capable of communicating to

sequence control and image processing systems. See figure 1 and col. 7 lines 15-25.

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 7, 8 and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murkami et al. of record in view of Reynolds et al.

Regarding claims 1, 7 and 11-14, Murkami et al. disclose all of the claimed subject matter, including wireless interface (8-2), except for RF transmission frequencies greater than 500 MHz. Reynolds et al. teach the use of wireless MRI machine communication at frequencies in the common ISM band at 2.4 GHZ, so

as not to interfere with the imaging procedure. See col. 5 line 64 – col. 6 line 34, col. 6 lines 49-55 and col. 7 lines 15-25. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify the decade-old wireless transmission technology of Murkami et al. with the current ISM or Bluetooth™ wireless transmission technology of Reynolds et al. to provide communication in a band that enables license-free use and worldwide compliance as well as faster transmission rates while staying well out of the range of MRI operation frequencies. Regarding claim 10, although specific protocols of RF communication are not addressed, lacking any criticality, techniques such as handshaking would have been an obvious matter of design choice to a person of ordinary skill in the art without undue experimentation depending upon the particular application.

Regarding claim 8, Murkami et al. disclose all of the claimed subject matter except for a transceiver providing a wireless communication pathway from the RF coil to a RF transmitter. Reynolds et al. teach that multiple 'intermediate' tranceivers are known for relaying/redirecting signals for the purpose of providing direct lines of communication and renewing signal strength (col. 5 lines 55-56, col. 7 line 42 – col. 8 line 7). It would have been obvious at the time the invention was made to a person of ordinary skill in the art to modify Murkami et al. to incorporate intermediate tranceiver(s) in the signal path as taught by Reynolds et al. so as to redirect/refresh the signals especially if not in a clear path of communication with the image processing system.

7. Claims 1, 7, 10-14 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kormos et al. of record in view of Reynolds et al.

Regarding claims 1, 7, 10-14 and 19-21, Kormos et al. teaches a system and method for using a wireless remote control device in an MRI apparatus. Kormos et al. further teaches that the remote control may use either IR or RF signals (col. 8 lines 45-51). Kormos et al. differs from the claimed invention in that communication of control signals from outside the MRI suite to the image processing system are performed using cables; and transmission frequencies greater than 500 MHz are not specifically addressed. In one embodiment (fig. 1D), Reynolds et al. disclose optical cabling for communication signals, however in other embodiments (e.g., fig. 1B, fig. 2), recognizes the advantages of wireless communication as increasing mobility and eliminating potential sources of tripping accidents for personnel (col. 5 line 64 – col. 6 line 10). Reynolds et al. further teach the use of RF communication frequencies in the common ISM band at 2.4 GHZ, so as not to interfere with the imaging procedure. See col. 5 line 64 – col. 6 line 34, col. 6 lines 49-55 and col. 7 lines 15-25. Moreover, Reynolds et al. disclose wireless communication using RF and infrared light as being functionally equivalent (col. 2 lines 56-65, col. 7 lines 26-34, see also applicant's specification p. 9 lines 9-12). It would have therefore been obvious at the time the invention was made to a person of ordinary skill in the art to modify the invention of Kormos et al. to operate with wireless RF technology e.g., in the ISM or Bluetooth™ band, as taught by Reynolds et al. to provide communication in a band that enables license-free use and worldwide compliance as well as faster

transmission rates while staying well out of the range of MRI frequencies and for the other above stated reasons. In addition, although specific protocols of RF communication are not addressed, lacking any criticality, techniques such as handshaking would have been an obvious matter of design choice to a person of ordinary skill in the art without undue experimentation depending upon the particular application.

Allowable Subject Matter

8. Claims 2-6 are allowed.

9. The indicated allowability of claim 8 is withdrawn in view of the newly discovered reference(s) to Reynolds et al.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawna J. Shaw whose telephone number is (703) 308-2985. The examiner can normally be reached on 6:45 a.m. - 3:15 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on (703) 308-3552. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shawna J. Shaw
Primary Examiner
Art Unit: 3737
09/14/2004